

Claims

1. A coreless AC linear motor, comprising:
 - a magnet assembly forming a magnetic gap (3);
 - a can (10) including a coil housing section (10F) having
- 5 a deep groove (10B) formed by gouging out material;
 - a plurality of coreless coils (5) inserted into the deep groove and arranged in a straight line inside the magnetic gap;
 - and
 - a cover body (11) for sealing the can.
- 10 2. The coreless AC linear motor of claim 1, wherein the material is stainless steel.
3. The coreless AC linear motor of claim 1, wherein the magnet assembly includes parallel rows of field magnets (31, 32).
4. The coreless AC linear motor of claim 1, wherein the magnet
- 15 assembly includes a pair of parallel side yokes (1, 2) to which the rows of field magnets (31, 32) are attached.
5. The coreless AC linear motor of claim 1, wherein each coreless coil is overlapped on another coreless coil.
6. The coreless AC linear motor of claim 1, comprising cooling
- 20 pipes (7) passing through the coreless coils.
7. The coreless AC linear motor of claim 6, wherein the cooling pipes come into contact with inner surfaces of each coreless coil.
8. The coreless AC linear motor of claim 1, comprising a plurality of spaced cooling pipes (7) extending through the coreless coils
- 25 parallel to each other.

9. The coreless AC linear motor of claim 8, wherein the plurality of cooling pipes come into contact with inner surfaces of each coreless coil.

10. The coreless AC linear motor of claim 1, wherein the can 5 includes a flange section (10A) which is wider than the coil housing section and joined to the cover body.

11. The coreless AC linear motor of claim 10, comprising an O-ring (12) for sealing between the can and the cover body in an air-tight manner, the flange section having a seat (10C) for receiving the 10 O-ring.

12. The coreless AC linear motor of claim 1, wherein a plurality of coreless coils are fixed to the can using resin or adhesive (3).

13. A method of manufacturing a coreless AC linear motor, 15 comprising: a step of gouging out material for a can to form a deep groove (10B);

 a step of arranging a plurality of coreless coils (5) in a straight line;

 a step of forming the plurality of coreless coils into 20 a flat plate-shaped block using resin or adhesive (3); and
 a step of inserting the flat plate-shaped block into the deep groove of the can.

14. The method of manufacturing the coreless AC linear motor of claim 13, wherein the material is stainless steel.

25 15. The method of manufacturing the coreless AC linear motor of claim 13, wherein the gouging step includes a step of machining a deep groove using an electrode tool.

16. The method of manufacturing the coreless AC linear motor of claim 15, wherein the gouging step includes a step of rough machining a deep groove using an end mill.

17. The method of manufacturing the coreless AC linear motor
5 of claim 15, wherein the gouging step includes a step of rough machining a deep groove using a drill.